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AUTHOR Arnold, Louise; And Others
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ABSTRACT

A multi-institutional database has been established to characterize selected aspects of the professional and personal lives of physicians 5 to 10 years after graduation from combined baccalaureate-M.D. degree (CD) programs. The purpose of this study is to explore whether these graduates' attitudes toward their education, their practice patterns, their accomplishments, and their professional and personal values vary according to the type of program they attended. This study examined the professional and personal characteristics of 799 physicians who had graduated from combined baccalaureate-M.D. degree (CD) programs between 1983-1987. The study found that graduates from 6-year programs indicated that they were better prepared for their medical careers, overall, than did graduates from longer programs. Graduates of 7- and 8-year programs spent more time teaching than did their 6-year counterparts, and graduates of 6-year programs were much more likely to be in clinical settings in the private practice of medicine than graduates from the longer programs. The study also found that 6-year graduates had higher mean scores for their accomplishments in professional and community service, whereas 7- and 8-year graduates achieved higher mean scores for accomplishments in scholarly activities. Overall, the study found relatively few differences in graduates' professional and personal characteristics based on the type of CD program they attended. (Contains 16 references and 12 tables.) (MDM)

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ED 385 196

Professional and Personal Characteristics of Graduates as Outcomes of Combined Baccalaureate-MD Degree Programs

The Research Consortium of Baccalaureate-MD Degree Programs*

Annual Meeting
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*The investigators for the consortium were: Louise Arnold, Ph.D. University of Missouri-Kansas City School of Medicine; Gang Xu, Ph.D., Jefferson Medical College; Lynn C. Epstein, M.D., Brown University School of Medicine; and Bonnie Jones, Ph.D., Northeastern Ohio Universities College of Medicine. Corresponding author is Dr. Arnold at the UMKC School of Medicine, 2411 Holmes, Kansas City, MO 64108.

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Objectives

A multi-institutional database has been established to characterize selected aspects of the professional and personal lives of physicians five to ten years after graduation from combined baccalaureate-M.D. degree (CD) programs. The purpose of this study is to explore whether these graduates' attitudes toward their education, their practice patterns, their accomplishments, and their professional and personal values vary according to the type of program they attended.

Perspective

The need for outcome measures in the assessment of educational program effectiveness has been cogently argued.[1] A special case has been lodged for outcome studies of innovative medical curricula as whole entities through the examination of a range of qualities, skills, and behaviors of graduates of alternative programs.[2] The hypothesis has been advanced that graduates of these innovative curricula may differ in some respects (such as interpersonal skills) from graduates of traditional schools although in other respects (such as preparedness for practice) they may be quite similar to their traditional counterparts.[2] Differences in graduates may reflect distinctive institutional cultures and organizational arrangements of the educational experience[2] as well as enrollment of distinctive types of students.[3]

Using a variant of the above perspective, this study describes graduates' professional and personal characteristics as outcomes of CD programs. These programs represent an innovative alternate pathway to the M.D. degree. However, before a comparison can be appropriately made between characteristics of graduates from CD and traditional programs, an examination of the variations and similarities in characteristics of graduates from different types of CD programs must be undertaken. CD programs are not identical in curricular design.[4] Some are six-year programs; others are seven or even eight years in length. Some of these programs attempt to offer students a relatively seamless educational experience by integrating the liberal arts and/or clinical medicine

throughout the curriculum; others focus on enriched liberal arts studies but retain a clear demarcation between studies for the baccalaureate and the M.D. degrees.[4] Moreover, the attitudinal profiles of students entering CD programs of different length vary to some extent,[5] a finding that suggests there may be differences among CD graduates. Hence, this study explores selected professional and personal characteristics of CD graduates in relation to the type of CD program they attended.

The length of the curriculum and the degree of curricular integration across disciplines are used in this study to distinguish types of CD programs. These aspects, of length and integration, have played a key role in organizing curricula not only in combined degree programs[4] but also in elementary through university education.[6,7] They also are major organizing principles of curricula in traditional medical schools as exemplified by three-year curricula introduced two decades ago,[8] more recent mergers of the senior year of medical school with the first year of residency training,[9] and contemporary discussion of the need for horizontal and vertical integration of the basic sciences and clinical medicine.[10,11]

Methods

Data Source. Thirteen institutions that are associated with a national consortium of CD programs and that had awarded the M.D. degree in 1983 through 1987 to students in CD curricula were invited to collaborate in this study. Of these, eight programs were able to participate in the study. Together they graduated in 1983-1987 a total of 1,183 physicians.

Dependent variables. In early 1993, a questionnaire was sent to each of these 1,183 physician graduates. The questionnaire contained items used to measure the graduates' professional and personal characteristics that were treated as the dependent outcome variables of this study. More specifically, the items concerned a) graduates' global assessment of their education plus perceptions of their professional preparation in comparison to their peers' preparation; b) their practice patterns including employment

status, practice location, practice setting, hours worked, and patient population served; c) professional and personal accomplishments; and d) professional and personal values as indicated by graduates' ratings of qualities they believe describe an effective physician and by the importance they themselves attach in their own lives to various qualities and behaviors. The questionnaire was adapted from an instrument that has produced a number of outcome studies in one medical school with a CD track.[12]

Where appropriate, factor analyses were performed to produce clean strong measures of the graduates' professional and personal characteristics. In particular, items about the graduates' perceptions of their professional preparation, their accomplishments, and their values were subjected to principal component factor analyses with Varimax rotations. Factor scores were then derived for graduates.

Independent Variables. A questionnaire was also sent to each participating CD institution so that the graduates could be categorized according to the length and degree of curricular integration of the program they attended. Program length was treated as a dichotomous variable that described all participating institutions: six year versus seven or eight years in length. An index of curricular integration was formed on the basis of institutional responses to questions about whether CD graduates were required to take liberal arts courses in the medical school phase of the program, which faculty offered these courses, whether graduates participated in required clinical experiences in medicine during the first two years of the curriculum, and whether the same institution awarded both the baccalaureate and the M.D. degrees. Points were awarded for "yes" responses to these questions and summed. The resulting index classified six CD programs whose index ranged from zero to four as low in curricular integration and two programs whose index ranged from nine to ten as high in curricular integration. In turn, graduates were grouped according to their program's length and integration, the independent variables of the study. The unit of analysis, however, is the individual graduate.

Data Analysis. Whether graduates of CD programs of different length and curricular integration reported different educational attitudes, values, and accomplishments was studied through F-tests applied to respective factor scores. Whether their career patterns differed by program type was examined through two by two ANOVA F-tests on continuous data and Chi-square analyses of categorical data. The SAS program was used. Because the study group contained many participants and 26 outcome characteristics of graduates were compared, statistical significance was set at $p \leq .01$.

Results

Response Rate. Seven hundred ninety-nine graduates (68%) returned a survey. The response rate ranged from 38% to 94%. However, six of the eight institutions achieved response rates of at least 62%.

Of the participating graduates, 741 were employed full-time. Their responses were used in the data analyses. Thus, the number of graduates in the study from six-year programs totaled 629 and from seven and eight-year programs 112; while the number of graduates from programs with low curricular integration was 397 and from programs with high integration 344. The percentage of graduates employed full-time did not differ significantly across program type ($x^2=6.598$, DF=6, $p=.36$).

Attitudes toward Education. In general, graduates from different types of CD programs held different attitudes toward their preparation for a medical career. For the graduates' global assessment of their medical education, the main effect of program length was significant (Table 1.) Using a ten-point scale, graduates from six-year programs indicated they were better prepared for their medical careers, overall, than did graduates from the longer programs (Table 1.)

When factor analysis was applied to 14 items that elicited graduates' specific perceptions of their preparedness for a medical career compared to that of their peers, three factors were extracted, each with an eigenvalue greater than unity. The proportion

of variance explained by each of these factors was 48, 9, and 8 respectively. Varimax rotation techniques retained these three factors that were entitled: clinical knowledge and skills, relationship and professional skills, and basic science and self education skills. Correlations larger than .40 between the questionnaire items and the factors were used to name the factors (Table 2.)

Two by two ANOVA F-tests of the factor scores derived from graduates' specific perceptions of their medical school preparation revealed four significant differences in those perceptions according to program type. A significant interaction effect between program length and integration was obtained for the clinical knowledge and skills factor. High-integration six-year graduates rated their medical school preparation in clinical knowledge and skills the highest; whereas high-integration seven and eight-year graduates reported the lowest preparation on this factor (Table 1.) Two main effects of program length were significant. Graduates of six-year programs rated their preparation in clinical knowledge and skills higher than did their seven and eight-year counterparts, while graduates of seven and eight-year programs rated their preparation in basic science and self education skills higher than did the six-year graduates (Table 1.) One main effect of integration was significant. Low-integration program graduates rated their preparation in basic science and self education skills better than did graduates of high-integration programs (Table 1.)

Graduates rated their preparation in relationship and professional skills the same, regardless of program type (Table 1.)

Practice Patterns. According to two by two ANOVA F-tests, one significant main effect of length was obtained regarding the practice patterns of graduates of the various types of CD programs (Table 3.) Graduates of seven and eight-year programs spent more time teaching than did their six-year counterparts (Table 3.) In addition, chi-square analysis showed that graduates of six-year programs were much more likely to be in clinical settings in the private practice of medicine (Table 4.) That same analysis also

suggested that graduates of seven and eight-year programs with low integration were a little more likely to be in academic settings and that graduates of seven and eight-year programs with high integration were slightly more likely to be in salaried practice settings or to be still in training (Table 4.)

Regarding other practice patterns (such as the amount of time spent on patient care, research, administration, and other activities; total hours worked per week; and percent of low income patients in a practice), graduates from the different types of CD programs were similar (Table 3.) Graduates also did not differ in the location of their practices, that is, whether the location was rural, suburban, or urban (x^2=20.996, DF=15, p=.14) and whether it was in an economically deprived area (x^2=5.391, DF=3, p=.14).

Accomplishments. Factor analysis of 18 items about graduates' accomplishments produced four factors with an eigenvalue greater than unity. The proportion of variance that these four factors explained was 21, 13, 6, and 6 respectively. After Varimax rotation techniques were applied, four factors were retained and were entitled: scholarly activities, patient care, community and professional services, and scholarly recognition. Correlations larger than .40 between the questionnaire items and the factors were used to name the factors (Table 5.)

The accomplishments of graduates, as reflected in their scores on these four factors, varied with program type, according to two by two ANOVA F-tests. Two main effects of program length were obtained for accomplishments: in scholarly activities and in professional and community service (Table 6.) Six-year graduates had higher mean scores for their accomplishments in professional and community service, whereas seven and eight-year graduates achieved higher mean scores for accomplishments in scholarly activities (Table 6.)

Graduates' mean scores for accomplishments in patient care and scholarly recognition were similar (Table 6.)

Professional and Personal Values. Factor analysis of 34 items tapping graduates' professional and personal values produced nine factors with eigenvalues greater than unity. The factors accounted for the following proportion of variance respectively: 23, 7, 6, 5, 5, 4, 3, 3, and 3. After Varimax rotation techniques were used, nine factors reminiscent of dimensions from the Allport Vernon Lindzey Value Inventory[13] and Rosenberg's Value Scale[14] were retained. They were entitled: people orientation, societal well-being, moral concerns, personal growth, intellectual growth and professional knowledge, scientific and intellectual abilities, conventional concerns, economic and prestige issues, and leisure. Correlations larger than .40 between the questionnaire items and the factors were used to name the factors (Table 7.)

Two significant interaction effects emerged as a result of the two by two ANOVA F-tests. High-integration six-year graduates registered the largest mean factor score on concerns with conventions, while high-integration seven and eight-year graduates scored the lowest on this value factor (Table 8.) High-integration seven and eight-year graduates had the greatest mean factor score on personal growth, but low-integration seven and eight-year graduates had the smallest mean score (Table 8.) The main effect of integration was significant for societal well-being. Graduates of high-integration programs had a larger mean score on this factor than did their counterparts from low-integration programs (Table 8.)

There were no differences between graduates from different programs on six of the nine value factors: people orientation, moral concerns, professional knowledge and intellectual growth, scientific and intellectual abilities, economic and prestige issues, and leisure.

Table 9 summarizes the results of the study.

Conclusion/Discussion

Relatively few differences in graduates' professional and personal characteristics were associated with the type of CD program they attended. Differences that were

uncovered concerned the graduates' attitudes towards their medical education, their professional and personal accomplishments, and to some extent a few practice patterns. The main effect of program length most typically accounted for the differences. Graduates of six-year programs felt they were well prepared for their careers in medicine, particularly in the area of clinical knowledge and skills. They were most often found in clinical settings in the private practice of medicine, and they distinguished themselves in providing such professional and community services as giving talks to lay groups and engaging in voluntary medical activities. On the other hand, graduates of seven and eight-year programs said they were especially well prepared in the basic sciences and self education skills. They were a little more likely to be in academic or salaried positions or to be still in training. They spent the greatest number of hours teaching each week, and they distinguished themselves in scholarly activities. In sum these differences between the six-year and seven and eight-year graduates seem to cohere around the physician role of clinician versus the physician role of scholar.

Why did these role differences emerge among graduates from CD programs of varying length? More time in the seven and eight-year curricula for scholarly opportunities and for the study of basic sciences may help to explain these results. In three-year medical schools twenty years ago, the amount of time available for basic science was clearly an issue.[8] But other factors not studied in the present research may also be at work. These may include such additional program characteristics as a mission for training researchers versus clinicians, the qualities of entering students, and the press of the graduates' practice environments.

The above differences notwithstanding, most of the CD graduates' characteristics studied were similar, regardless of program type. This was most notable with respect to the graduates' practice activities: the amount of time they spent on patient care, their practice location and income level of their patients, plus their professional and personal values. Moreover, the degree of curricular integration of the CD programs was rarely

associated with the graduates' professional and personal characteristics. Perhaps the following circumstances may partially explain the similarity among graduates. First, other aspects of combined degree programs may exert a stronger influence on graduates' characteristics than those selected for study here. Second, the length of the program and degree of curricular integration may not have been uniformly implemented at each of the participating institutions. In some programs, length and integration may be slogan language used to capture desired educational reform;[15] and students may actually take longer to complete their degree work than the announced six, seven, or eight years, and integration of disciplines may not occur in the classroom, on ward rounds, or during small group discussions.[16] Finally, the culture and organization of the profession of medicine, particularly with regard to patient care, may constrain the amount and type of variation that exists among physicians.

Before it can be concluded that curricular length and integration of programs have relatively little to do with the professional and personal characteristics of the graduates, the methodological problems of this study must be considered. First, during the time period of the study, only three institutions had CD programs with curricula longer than six years. Although these institutions are represented in this study, a poor response rate (38% and 40%) from two of these programs compounded the fact that these seven and eight-year programs admitted relatively few students. Second, the integration index used may have combined disparate elements; and the cutting point for classifying programs into high and low degrees of curricular integration may have been inappropriately set. Third, the outcome characteristics chosen for study and the way they were measured may have been too general to pick up differences in graduates that might stem from the educational innovations the CD programs introduced regarding curricular length and integration of disciplines. If these issues were addressed in the future, a clearer test of the association between program type and graduates' professional and personal characteristics might be possible.

Although considerable work remains, this study is one of a few that looks at outcomes of an innovative approach to medical education from the perspective of multiple institutions. It points to the challenges that attend the investigation of outcomes of innovative curricular in medical education, particularly, and in health professions, more generally. These challenges include the development of sharper conceptual descriptors of curricular differences among programs, better measurement of these descriptors, fuller representation of institutions that offer the types of programs under study, and use of outcome measures that are more closely tailored to the program design of interest. If these challenges are surmounted, then, perhaps clearer understandings of how program type translates into differences among graduates can be gained.

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Table 1

Attitudes toward Medical School Education Held by Graduates of Different Types of Combined Degree Programs

Attitudes	Program Type							
	6 Years				7-8 Years			
	Low Integration		High Integration		Low Integration		High Integration	
	x	SD	x	SD	x	SD	x	SD
Global Assessment[a]	7.4	1.9	7.7	1.8	6.9	2.2	6.9	2.1
Preparation Factors								
I. Clinical Knowledge & Skills[b]	3.8	1.0	4.4	0.8	3.8	0.9	3.4	1.0
II. Relationship & Professional Skills[c]	3.9	1.0	4.2	0.8	3.8	1.1	3.8	1.1
III. Basic Science & Self Education Skills[d]	4.2	0.9	3.7	1.0	4.5	0.9	4.1	1.1

[a] 2x2 ANOVA. Interaction effects F=.80, p=.37; **Main effect of length F=9.94, p=.002**; Main effect of integration F=.37, p=.54

[b] 2x2 ANOVA. **Interaction effects F=22.7, p=.0001; Main effect of length F=25.86, p=.0001**; Main effect of integration F=1.70, p=.19

[c] 2x2 ANOVA. Interaction effects F=3.07, p=.08; Main effect of length F=5.15, p=.02; Main effect of integration F=3.12, p=.08

[d] 2x2 ANOVA. Interaction effects F=.84, p=.36; **Main effect of length F=13.86, p=.0002; Main effect of integration F=18.36, p=.0001**

Table 2

Rotated Factor Patterns: Combined Degree Graduates' Specific Perceptions of Medical School Preparation

Factors	Factor Loadings
Factor I. Clinical Knowledge & Skills	
Physical exam skills	.78
History-taking skills	.73
Diagnostic procedures & lab skills	.72
Manual skills at technical procedures	.69
Clinical knowledge	.67
Recording data skills	.65
Competence in data use	.58
Ambulatory care	.48
Factor II. Relationship & Professional Skills	
Relationships with patients	.84
Professional relationships	.81
Attitude toward professional responsibility & understanding MD role	.80
Ambulatory care	.49
Competence in data use	.47
History-taking skills	.41
Factor III. Basic Science & Self Education Skills	
Basic science knowledge	.79
Critical literature review skills	.78
Self-directed learning	.54

Table 3

Practice Patterns of Graduates of Different Types of Combined Degree Programs

Practice Patterns	Program Type							
	6 Years				7-8 Years			
	Low Integration		High Integration		Low Integration		High Integration	
	x	SD	x	SD	x	SD	x	SD
Total Work Hours per week[a]	60.9	14.1	61.8	15.5	60.4	17.8	61.2	14.7
Hours Patient Care/wk[b]	44.9	20.1	49.8	21.5	47.7	33.1	42.1	21.8
Hours Teaching/wk[c]	4.5	5.6	4.3	6.4	7.3	10.1	5.7	7.3
Hours Research/wk[d]	8.0	16.0	4.1	11.3	8.5	18.7	10.1	14.5
Hours Administration/wk[e]	3.0	4.9	3.2	4.2	3.4	5.6	3.5	6.1
Other hours/wk[f]	.9	4.9	1.2	5.5	1.5	6.0	.6	2.1
% Low Income Patients[g]	24.1	23.7	26.4	23.4	25.9	28.5	34.3	29.6

[a]2x2 ANOVA Interaction effects F=.001, p=.96; Main effect of length F=.11, p=.74, Main effect of integration F=.28, p=.60

[b]2x2 ANOVA Interaction effects F=4.94, p=.03; Main effect of length F=1.01, p=.32 Main effect of integration F=.03, p=.87

[c]2x2 ANOVA Interaction effects F=1.00, p=.32; **Main effect of length F=9.25, p=.002**; Main effect of integration F=1.66, p=.20

[d]2x2 ANOVA Interaction effects F=3.00, p=.08; Main effect of length F=4.23, p=.04; Main effect of integration F=.49 p=.48

[e]2x2 ANOVA Interaction effects F=.02, p=.90; Main effect of length F=.36, p=.55; Main effect of integration F=.07, p=.80

[f]2x2 ANOVA Interaction effects F=1.28, p=.26; Main effect of length F=.001, p=.97; Main effect of integration F=.32, p=.57

[g]2x2 ANOVA Interaction effects F=1.13, p=.29; Main effect of length F=2.85, p=.09; Main effect of integration F=3.51; p=.06

Table 4

Practice Patterns of Graduates of Different Types of Combined Degree Programs

Practice Setting	Program Type			
	6 Years		7-8 Years	
	Low Integration	High Integration	Low Integration	High Integration
Academic	21%	21%	29%	22%
Clinical	46%	51%	37%	25%
Salaried	16%	13%	16%	25%
In training	15%	12%	18%	22%
Other	2%	2%	0%	6%
Total	100%	99%	100%	100%

x^2=26.247, DF=12, p=.01

Table 5

Rotated Factor Patterns: Combined Degree Graduates' Professional and Personal Accomplishments

Factors	Factor Loadings
Factor I. Scholarly Activities	
Presented papers	.78
Published articles	.78
Conducted research	.77
Received research grant	.69
Contributed to published book	.64
Reviewed for journal	.62
Developed new medical procedures, drugs described in literature	.50
Factor II. Patient Care	
Raised patient compliance	.74
Offered special services to patients	.71
Made house calls	.50
Pioneered unique practice methods	.48
Factor III. Professional & Community Services	
Served on professional committees	.66
Gave talks to lay groups	.62
Received professional award	.50
Participated in community affairs	.44
Engaged in voluntary medical activities	.44
Factor IV. Major Scholarly Recognition	
Served as editor of journal	.73
Held national office in professional organization	.67

Table 6

Professional and Personal Accomplishments of Graduates of Different Types of Combined Degree Programs

Accomplishments: Factors	Program Type							
	6 Years				7-8 Years			
	Low Integration		High Integration		Low Integration		High Integration	
	x	SD	x	SD	x	SD	x	SD
I. Scholarly Activities[a]	1.5	0.5	1.4	0.5	1.6	0.6	1.6	0.5
II. Patient Care[b]	1.5	0.5	1.5	0.5	1.4	0.4	1.5	0.5
III. Professional & Community Service[c]	1.5	0.5	1.6	0.5	1.4	0.5	1.4	0.4
IV. Scholarly Recognition[d]	1.5	0.5	1.5	0.4	1.6	0.7	1.6	0.7

[a]2x2 ANOVA Interaction effects F=2.72, p=.10; **Main effect of length F=7.24, p=.007,** Main effect of integration F=1.92, p=.17

[b]2x2 ANOVA Interaction effects F=.42, p=.52; Main effect of length F=1.88, p=.17; Main effect of integration F=1.61, p=.20

[c]2x2 ANOVA Interaction effects F=2.55, p=.11; **Main effect of length F=6.44, p=.01;** Main effect of integration F=.56, p=.46

[d]2x2 ANOVA Interaction effects F=.001, p=.98; Main effect of length F=5.29, p=.02; Main effect of integration F=.17, p=.68

Table 7

Rotated Factor Patterns: Professional and Personal Values of Combined Degree Graduates

Factors	Factor Loadings
Factor I. People Orientation	
Sensitivity	.78
Interest in patients as people	.73
Ability to relate to people	.68
Warm personality	.66
Humanitarian concerns	.58
Empathy	.51
Social issues from MD perspective	.41
Factor II. Societal Well-being	
Social issues from personal perspective	.80
Political awareness	.71
Social issues from MD perspective	.67
Community involvement	.62
Humanitarian concerns	.44
Factor III. Moral Concerns	
Responsibility	.71
Moral values	.65
Family relationships	.58
Human respect	.57
Integrity	.50
Emotional stability	.47
Empathy	.40
Factor IV. Personal Growth	
Creativity	.67
Personal growth	.66
Individual freedom	.63
Cultural activities	.51
Factor V. Professional Knowledge & Intellectual Growth	
Intellectual growth	.77
Professional knowledge	.70
Helping others	.41
Factor VI. Scientific & Intellectual Abilities	
Good research ability	.68
High intellectual ability	.67
Scientific curiosity	.54
Emotional stability	.41
Factor VII. Conventional Concerns	
Adherence to rules	.77
Conformity	.70
Cooperation	.50
Good appearance	.40
Factor VIII. Economic & Prestige Issues	
Material things	.75
Competition	.71
Conformity	.41
Factor IX. Leisure	
Leisure & recreation	.74

Table 8

Professional and Personal Values of Graduates of Different Types of Combined Degree Programs

Values: Factors	Program Type							
	6 Years				7-8 Years			
	Low Integration		High Integration		Low Integration		High Integration	
	x	SD	x	SD	x	SD	x	SD
I. People Orientation[a]	2.9	1.1	3.1	0.9	2.9	1.1	3.0	0.9
II. Societal Well-being[b]	2.9	1.0	3.2	0.9	2.4	1.2	3.1	1.2
III. Moral Concerns[c]	3.0	1.1	3.0	0.9	3.3	0.9	3.0	0.8
IV. Personal Growth[d]	3.0	1.0	3.0	1.0	2.7	1.1	3.2	0.9
V. Professional Knowledge & Intellectual Growth[e]	3.0	1.0	2.9	1.0	3.0	1.0	3.2	0.9
VI. Scientific & Intellectual Abilities[f]	3.1	1.0	3.0	1.0	2.7	1.1	2.9	0.9
VII. Conventional Concerns[g]	2.9	1.0	3.2	0.9	3.1	1.1	2.8	1.0
VIII. Economics & Prestige[h]	2.9	1.0	3.1	1.0	3.0	0.9	2.8	1.0
IX. Leisure[i]	3.0	1.0	3.0	1.0	2.9	1.0	3.0	0.9

[a]2x2 ANOVA Interaction effects F=0.23, p=.63; Main effect of length F=.32, p=.57, Main effect of integration F=1.96, p=.16

[b]2x2 ANOVA Interaction effects F=3.73, p=.05; Main effect of length F=5.47, p=.02 **Main effect of integration F=20.88, p=.0001**

[c]2x2 ANOVA Interaction effects F=2.49, p=.11; Main effect of length F=3.33, p=.07; Main effect of integration F=1.35, p=.25

Table 8 continued

[d]2x2 ANOVA **Interaction effects F=6.66, *p*=.01**; Main effect of length F=.07, *p*=.79; Main effect of integration F=5.69, *p*=.02

[e]2x2 ANOVA Interaction effects F=1.59, *p*=.21; Main effect of length F=2.31, *p*=.13; Main effect of integration F=.77, *p*=.38

[f]2x2 ANOVA Interaction effects F=1.75, *p*=.19; Main effect of length F=5.67, *p*=.02; Main effect of integration F=.65, *p*=.42

[g]2x2 ANOVA **Interaction effects F=9.36, *p*=.002**; Main effect of length F=.59, *p*=.44; Main effect of integration F=.02, *p*=.87

[h]2x2 ANOVA Interaction effects F=3.25, *p*=.07; Main effect of length F=.1.48, *p*=.22; Main effect of integration F=.001, *p*=.95

[i]2x2 ANOVA Interaction effects F=.44, *p*=.51; Main effect of length F=.05, *p*=.82; Main effect of integration F=.25, *p*=.62

Table 9

Summary of Results: Professional and Personal Characteristics of Graduates as Outcomes of Combined Baccalaureate-M.D. Degree Programs

ATTITUDES TOWARD EDUCATION

Variables 2x2 ANOVA	Interaction Effects	Main Effect of Length*	Main Effect of Integration**
Global Assessment	no	**yes 6=high*** **	no
Preparation Factors:			
I. Clinical Knowledge & Skills	**yes 6I=high 7I=low**	**yes 6=high**	no
II. Relationship & Professional Skills	no	no	no
III. Basic Science & Self Education Skills	no	**yes 7=high**	**yes i=high**

PRACTICE PATTERNS

Variables 2x2 ANOVA	Interaction Effects	Main Effect of Length	Main Effect of Integration
Total Work Hours/week	no	no	no
Hours Patient Care/wk	no	no	no
Hours Teaching/wk	no	**yes 7=High**	no
Hours Research/wk	no	no	no
Hours Administration/wk	no	no	no
% Low Income Patients	no	no	no

*6=six-year curriculum, 7=seven and eight-year curricula
**I=high integrated curriculum, i=low integrated curriculum
***All significant differences appear in bold-face type.

PRACTICE PATTERNS

Nominal Variables	Chi-Square Analyses Significant
Full/Part-time Employment	no
Rural/urban Practice	no
Deprived Practice Location	no
Practice Type: Academic	**yes 7i=high**
Practice Type: Clinical	**yes 6=high**
Practice Type: Salaried	**yes 7I=high**
Practice Type: Still in Training	**yes 7I=high**

ACCOMPLISHMENTS

Variables 2x2 ANOVA	Interaction Effects	Main Effect of Length	Main Effect of Integration
Factors:			
I. Scholarly Activities	no	**yes 7=high**	no
II. Patient Care	no	no	no
III. Community & Professional Service	no	**yes 6=high**	no
IV. Scholarly Recognition	no	no	no

*6=six-year curriculum, 7=seven and eight-year curricula

**I=high integrated curriculum, i=low integrated curriculum

***All significant differences appear in bold-face type.

VALUES

Variables 2x2 ANOVA	Interaction Effect	Main Effect of Length	Main Effect of Integration
Factors:			
I. People Orientation	no	no	no
II. Societal Well-being	no	no	**yes I=high**
III. Moral Concerns	no	no	no
IV. Personal Growth	**yes 7I=high 7i=low**	no	no
V. Professional Knowledge & Intellectual Growth	no	no	no
VI. Scientific & Intellectual Abilities	no	no	no
VII. Conventional Concerns	**yes 6I=high 7I=low**	no	no
VIII. Economic & Prestige Issues	no	no	no
IX. Leisure	no	no	no

*6=six-year curriculum, 7=seven and eight-year curricula

**I=high integrated curriculum, i=low integrated curriculum

***All significant differences appear in bold-face type.